ORIGINAL

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Section 90.239 of the	)	
Commission's Rules to Adopt Permanent	)	**RM No. 8013**
Regulations for Automatic Vehicle	)	
Monitoring Systems	)	

REPLY COMMENTS OF MOBILEVISION IN SUPPORT OF THE TELETRAC PETITION FOR RULEMAKING

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SUMMARY

North American Teletrac and Location Technologies (Teletrac) petitioned for a rulemaking and requested that the Commission adopt permanent rules governing Automatic Vehicle Monitoring (AVM) Systems. In its petition, Teletrac proposed rules that are designed to encourage and facilitate the widespread development and implementation of wideband pulse-ranging AVM systems. MobileVision supports this laudable goal and therefore filed comments endorsing Teletrac's petition. Several parties filed comments opposing Teletrac's petition. These adverse comments rely on misstatement for support and overall reflect a fundamental misunderstanding of AVM technology, the Commission's interim rules, and Teletrac's proposed rules. Therefore, the Commission should disregard these comments, initiate a rulemaking, and adopt permanent rules similar to those proposed by Teletrac.

The negative comments in this proceeding were filed by two groups: (1) Amtech Corporation (Amtech) and its customers; and (2) potential wideband licensees with no tested technology. For its part, Amtech urges the Commission to adhere to a shared spectrum licensing scheme which would protect Amtech's current market position while excluding wideband AVM providers. Southwestern Bell Corporation (SBC) and Pinpoint Communications, Inc., the ringleaders of the second group, request that the Commission place an indefinite hold on the AVM market, while they develop, test, and implement their own AVM systems. These proposals share a single common thread--Both would impose obstacles to the timely development and implementation of wideband pulse-ranging AVM systems to the ultimate detriment of the consuming public.

A. Amtech

Amtech cluttered its comments with unfounded criticisms of wideband pulse-ranging technology, without acknowledging its many benefits. The benefits to be gained from wideband pulse-ranging technology are enormous. Unlike their predecessors, wideband pulse-ranging systems allow continuous management and monitoring of objects as they move throughout a large area. Hence, wideband systems are well suited for, among other things, fleet management applications, stolen vehicle recovery, and emergency roadside assistance.

However, in order to provide these diverse services, state-of-the art wideband systems require 8 MHz of spectrum substantially free of interference. Wideband or narrowband systems operating on the same spectrum, will interfere with wideband pulse-ranging operations and render wideband systems inoperable. Contrary to Amtech's assertion; the interim rules recognized this reality and reserved the 904-912 MHz and 918-926 bands for wideband systems. However, under the interim rules narrowband systems have been licensed in wideband frequencies by waiver or mistake. The petition proposes a return to the Commission's original plan and therefore precludes prospective licensing of narrowband systems in the wideband frequencies. Further, the rules provide for co-channel separation between wideband systems.

Amtech attributes the need for limits on interference to technical deficiencies in wideband pulse-ranging systems. Amtech notes that its system can withstand interference and criticizes wideband system sensitivity. However, these arguments and attempted comparisons demonstrate Amtech's misunderstanding of contemporary AVM technology.

Unlike Amtech's narrowband system, wideband pulse-ranging technology is designed to permit continuous monitoring and management of objects throughout a large area. To

achieve these objectives, wideband system signals travel miles and confront numerous interfering sources along the way. In contrast, Amtech's system signals travel a maximum of 500 feet, and are thus unlikely to encounter interfering sources. However, these short range signals limit the system's ability to provide fleet management and other services which are the bread and butter of wideband pulse ranging AVM. Therefore, far from being a technical deficiency, the wideband system need for protection from interference is inextricably intertwined with the systems's enhanced benefits.

Furthermore, Amtech opines that the proposed rules' prohibition on future narrowband licensing in the 904-912 MHz and 918-926 MHz bands will displace or preclude Amtech's narrowband operations. This contention ignores the protections for current narrowband providers incorporated in the proposed rules. The petition proposes that existing narrowband licensees be grandfathered. Thus, the proposed rules will not displace or preclude any current narrowband operations. Amtech and its customers are protected and can continue to operate on their designated frequencies.

Therefore, the proposed rules will not have the anticompetitive effect of eliminating Amtech and other narrowband providers from the market as Amtech predicts. To the contrary, the proposed rules will provide the interference protection necessary to ensure the introduction of wideband pulse-ranging systems to the marketplace. Wideband pulse-ranging systems will both complement and supplement the narrowband service provided by Amtech and others, to the ultimate benefit of consumers. Indeed, only adherence to Amtech's shared spectrum approach guarantees anticompetitive effects. Shared spectrum will be deadly to wideband pulse ranging systems and will thus preclude their introduction, leaving Amtech and other entrenched providers in control of the AVM market.

2. Pinpoint and Southwestern Bell

While Teletrac and MobileVision have developed, tested, refined, and deployed their AVM systems, Pinpoint and SBC have been content to wait in the wings. As a result, Pinpoint and SBC have ideas about AVM technology, but nothing else. Neither company has implemented a system, and neither company has any real data. Nonetheless, Pinpoint and SBC invite the Commission to indefinitely delay the implementation of current wideband pulse-ranging systems in the hope that one day they would be ready to join the fray. The Commission must resist this invitation.

Pinpoint claims that it had designed a more "robust" system which will be able to coexist on the same spectrum with numerous wideband systems and an unlimited number of narrowband systems. In addition, Pinpoint claims its system can operate without a forward link frequency. However, Pinpoint makes these claims based upon the assumption that it will have at least 16 MHz and possibly 22 MHz of spectrum. Such an exorbitant allocation of scarce spectrum would be contrary to the interim rules which limit systems to 8 MHz. The interim rules limit spectrum allocation for good reason, since no one has provided concrete proof that wideband systems can share spectrum successfully.

Likewise, Pinpoint has submitted no evidence to support its speculative assertion that wideband systems can coexist without interference. In contrast, Teletrac and MobileVision have submitted the results of their real world interference studies to the Commission, as part of their respective comments on the proposed rules. Though MobileVision will continue to strive to develop a system capable of coexistence, the studies confirm that at this point wideband pulse-ranging systems cannot tolerate other wideband systems on the same spectrum.

SBC claims that there may come a day when it can develop and deploy a wideband pulse-ranging system capable of operation on 4 MHz. Like Pinpoint, SBC offers no data to support his assertion, just speculation. In contrast, Teletrac and MobileVision have offered the Commission real data that demonstrates that wideband pulse-ranging technology requires 8 MHz of spectrum for accurate, commercially viable location service. The Commission should recognize SBC's comments for what they are -- idle theory.

The AVM marketplace has matured and the time for permanent rules is now. Companies like Teletrac and MobileVision have invested millions of dollars in developing commercially viable wideband pulse-ranging AVM systems. Consumers are demanding services associated exclusively with wideband pulse-ranging technology. Adoption of the proposed rules will remove risks which now inhibit build out of wideband systems and allow wideband licensees to bring their systems to the waiting market. Moreover, adoption of the proposed rules will encourage companies like SBC and Pinpoint to develop and build out their own systems. Finally, the rules will not preclude or prejudice Amtech's current operations. Therefore, the public interest demands that the Commission adopt permanent rules.

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REPLY COMMENTS OF MOBILEVISION
IN SUPPORT OF TELETRAC PETITION FOR RULEMAKING

MobileVision respectfully submits these comments in response to the commentors opposing North American Teletrac and Location Technologies, Inc.'s (Teletrac) Petition for Rulemaking in the captioned proceeding. The negative comments were filed by two groups: (1) Amtech Corporation (Amtech) and its customers; and (2) potential wideband licensees with no tested technology.

Amtech: Amtech's comments reflect a fundamental misunderstanding of both the existing interim rules and the permanent rules proposed by Teletrac. Further, Amtech's comments are based upon false assumptions regarding the differences between wideband wide-area and narrowband local-area AVM systems. Based upon these misunderstandings and faulty assumptions, Amtech predicts the proposed rules will decimate the AVM industry leaving Teletrac, and maybe one other, as the sole survivors. Amtech's comments are at best disingenuous. Indeed, it is the adoption of Amtech's proposals that would stifle the growth of AVM technology. Continued licensing of narrowband systems on frequencies across the entire AVM spectrum, as Amtech proposes, would pollute that spectrum making the implementation of wideband AVM systems impossible. As a result, Amtech would deny to the public the benefits of new and innovative services that can be provided only by such wideband wide-area systems.

In contrast, the proposed rules are designed to promote competition -- competition among wideband wide-area systems and between narrowband and wideband systems. The rules specifically propose that the Commission grandfather all existing licensees, thus ensuring continuity of service for Amtech's systems. Moreover, the proposed rules would allow new and existing narrowband licensees to implement their systems on the spectrum currently provided to them in the interim rules. Importantly, the rules would limit harmful interference, allowing both wideband and narrowband systems to flourish.

Finally, Amtech's characterization of the interim rules as permitting narrowband licensees on the 904-912 MHz and 918-926 MHz bands is revisionist history. The proposed rules merely seek to enforce the existing narrowband licensing scheme specified in the interim rules. Nothing more. Nothing less.

Pinpoint, Southwestern Bell: Pinpoint and Southwestern Bell are simply not ready to play in the market. They do not have licenses. They do not have proven technologies. Thus, they are relegated to making claims that they may be able to develop or implement a system that is more efficient than existing wideband pulse-ranging systems. In the meantime, rather than allow companies such as Teletrac and MobileVision -- companies with both proven technology and licenses -- to implement wideband pulse-ranging systems, these entities would impose a restraining order on the market.

In short, all commentors opposing Teletrac's petition have at least one thing in common: they invoke the Commission's assistance in an effort to impede the timely implementation of wideband pulse-ranging systems. This position cannot be squared with

either Section 7 of the Communications Act or the public interest.[1] The public interest demands that the Commission adopt permanent rules which promote the continued development and implementation of both wideband and narrowband AVM systems.

BACKGROUND

The comments offer differing views of the AVM industry, the state of current technology and the content of the rules that should govern the licensing and implementation of that technology. In particular, Amtech's comments are littered with misstatements which must result from at least one of three things: (1) a misreading of the interim and proposed rules; (2) a misunderstanding of the differences between wideband wide-area systems and narrowband local-area systems; or (3) a desire to inhibit the introduction to consumers of services provided by wideband wide-area systems. These misstatements regarding the rules, the technology and the market must be corrected. Only then can the Commission fully understand the need for rules that will accommodate the different technologies while promoting continued deployment and development of all types of AVM systems.[2]

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[1] Amtech and Pinpoint repeatedly cite Section 7 of the Act in support of their positions in this proceeding. 47 U.S.C. § 157. This Section of the Act does not support Amtech's and Pinpoint's position that the Commission should impede the implementation of "new technologies and services to the public." Yet this would be the precise impact of adopting Amtech's or Pinpoint's position. Under their scheme, licensees would be unable to implement state-of-the-art wideband pulse-ranging technology.

[2] While these reply comments address numerous of Amtech's misstatements, due to their abundance it is impossible to refute each and every one of them here. To the extent necessary, MobileVision will address these matters in its comments during the rulemaking proceeding.

A. There Are Substantial Technological Differences Between Narrowband And Wideband Pulse-Ranging Systems.

The most prevalent types of automatic vehicle monitoring technologies available to the marketplace are narrowband tag reader systems and wideband pulse-ranging systems.[3] Each type of system employs a different technology and consequently requires a different amount of spectrum. While wideband wide-area systems perform many functions performed by narrowband local-area systems, wideband pulse-ranging technology offers a vast array of additional services as well.[4]

1. Tag Reader Narrowband Systems

Amtech's tag reader system is the most widely implemented narrowband local-area AVM system. The Amtech system includes two key elements: the fixed tag reader and a tag. Tag readers are installed in the area designated for location (*e.g.*, along a train track). Tags are installed on vehicles which will pass through the area designated for location. As the object to be located passes the tag reader, the reader recognizes the tag and processes the location information (*e.g.*, location of the rolling stock).

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[3] The Commission recognized in the early 1970s that these types of technology (along with "dead reckoning") would be the primary categories of AVM technology. *Inquiry as to Automotive Vehicle Locator Systems in the Land Mobile Radio Services,* Further Notice of Inquiry, 35 F.C.C.2d 692, 693 ¶ 4 (1972); Report and Order, 30 Rad.Reg. 2d (P&F) 1665, 1666-69 ¶¶ 4-7 (1974).

[4] For example, a tag reader system cannot provide emergency road service, emergency medical service, stolen vehicle recovery and management of fleet truck or delivery vehicles since by its nature such a system requires the vehicle to come to the "locator" along a fixed route.

The Amtech system and others like it transmit narrowband signals that travel a maximum of 500 feet between the reader and the tag. Thus, tag reader technology has proven itself useful, but only for local area location tasks where the mobile object will pass within close proximity to the tag reader. For example, a tag reader system can effectively locate rail cars since the cars always pass by the readers installed along the track.

In sum, narrowband tag systems are designed to determine when a vehicle with a tag is near a tag reader. That is it. They are not capable of pervasive location over a wide area, such as the entire city of Chicago. They cannot manage a fleet of vehicles throughout such an area. Nor can they remain in constant communication with the vehicles on their system. Therefore, tag reader systems have limited application for fleet management and are wholly unsuited for stolen vehicle recovery and other services which require tracking over a large area.

2. Wideband Pulse-Ranging Systems

Wideband pulse-ranging technology operates very differently from narrowband tag reader systems. As a result, its applications are not as limited. Wideband pulse-ranging technology employs pulse emissions from transmitters located on vehicles or other objects where appropriate. (Thus, unlike the Amtech system, the vehicular device is not passive.) Multiple towers receive the emissions from subscribers scattered throughout a wide service area. A system control center then interprets the data being conveyed and calculates the distance between the signalling object and each respective tower. Through this process the system can both identify the object and determine the object's location, even when the object is actually located far from the system's towers (in contrast to the 500 foot limit of a tag

system). In addition, based upon the signal received, the system control center can determine the needs of the communicating vehicle (*e.g.,* motorist in danger, mechanical failure, or location of delivery trucks).

Thus, unlike Amtech's narrowband system, wideband pulse-ranging AVM systems can continuously monitor objects as they move within a wide geographic area. Moreover, unlike the tag system, wideband technology does not require that the object being located be within close proximity to the towers. This feature enables wideband wide-area systems to perform important services which cannot be provided by narrowband local-area tag systems. For example, a wideband system can monitor a delivery or transportation fleet throughout an entire metropolitan area. In the event of vehicle breakdown or severe traffic congestion, the AVM customer would be able to dispatch another delivery truck. Similarly, by continuously monitoring the vehicles, a wideband system can provide immediate assistance to stranded motorists and assist in law enforcement efforts. In sum, wideband pulse-ranging systems are capable of providing new and innovative services to the public.

3. Wideband Pulse-Ranging Systems Require 8 MHz Of Spectrum, Substantially Free Of Interference.

In order to provide these diverse services, state-of-the-art wideband systems require eight MHz of spectrum substantially free of interference. Because the essence of wideband technology is location throughout a large area, system signals must travel long distances between the object being located and the system towers. Signals traveling miles are likely to encounter interference and become distorted before reaching one or more of

the towers. Distorted signals between the object being located and system towers can delay location, undermine system accuracy, or preclude location altogether.

Interference on wideband AVM systems results from the "near/far" problem. Any two signals on the same frequency will interfere with each other, even though wideband wide-area signals exhibit a significant degree of interference rejection. The "near/far" problem results from the fact that a strong (undesired) signal near a receiver will degrade and ultimately block the reception of a (desired) far signal as the interference rejection capability of the system is exhausted. For example, in an urban environment an interfering signal source located one mile from a receiver will typically be received sixteen times stronger than a desired signal source located two miles from the receiver. As a result, the distant desired signal need not be that much more distant than the close interfering signal before the interference rejection capability is exhausted. Once the rejection capability is exhausted, the interference from uncontrolled sources cannot be overcome and would cause the system to fail.[5] Attachment A to MobileVision's initial comments and Appendix 2 to the Petition in this proceeding describe in detail the destructive effect interference has on wideband pulse-ranging AVM systems.[6]

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[5] In any given location there will always be a certain level of uncontrolled interference from other authorized users of the spectrum. This interference already erodes the interference rejection capability of the wideband system and makes it all the more essential that interference from narrowband systems be curtailed.

[6] Comments of MobileVision in support of the Teletrac Petition for Rulemaking, filed on July 23, 1992, Appendix A (MobileVision Initial Comments); Petition for Rulemaking of North American Teletrac and Location Technologies, Inc., filed on May 26, 1992. Appendix 2. Since tag reader systems only read one object at a time and operate at a maximum of 500 feet, the "near/far" problem does not arise. In the event a narrowband system were to attempt to provide service over a wide area, it would experience significantly worse "near/far" problems than those experienced by a wideband system.

Therefore, contrary to Amtech's unsupported assertion[7], the need of wideband wide-area systems for protection from destructive interference is not a technical deficiency. It is a result of the "near/far" problem. While the need for protection from destructive interference is inherent to wideband wide-area technology, it is also inextricably intertwined with its enhanced benefits.

Throughout its comments, Amtech touts its narrowband local-area system, while denigrating wideband pulse-ranging technology. Amtech notes that Teletrac's wideband AVM system does not interfere with its system, and argues that wideband systems should be similarly resistant to interference. Amtech's ability to resist wideband interference is irrelevant since its narrowband local area system does not suffer from "near/far" problems. Moreover, this argument fails to acknowledge the technical differences between Amtech's narrowband local-area system and wideband wide-area systems.[8] Amtech attempts to obscure the fact that these systems each employ different technology, each has different limitations and each provide different services at contrasting levels of sophistication.[9]

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[7] Opposition to Petition for Rulemaking of Amtech Corporation, filed on July 23, 1992, at 12, 26 (Amtech Opposition).

[8] For example, wideband pulse-ranging systems can provide services within both wide areas and local areas. Narrowband systems, in contrast, can only provide service within a local area.

[9] In addition, Amtech is comparing systems that are at very different stages in the product cycle. Wideband pulse-ranging systems are relatively early in their implementation stage. Thus, it is irrelevant to compare the number of customers on narrowband versus wideband systems.

B. The 1974 Interim Rules Recognized The Differences Between AVM Systems And Allocated Spectrum Accordingly.

The Commission's 1974 interim rules recognized the difference between narrowband and wideband pulse-ranging technology.[10] Therefore, the Commission established different licensing schemes for these services. *See* MobileVision Initial Comments, Attachment A. While most parties to this proceeding recognize that the 1974 rules need some adjustment, the rules provide a good starting point because the factual basis and most of the assumptions underlying the rules have proven valid.

1. The 1974 Interim Rules Treated Narrowband And Wideband Pulse-Ranging Systems Differently.

The Commission's 1974 rules recognized -- and accommodated -- the substantial differences between narrowband AVM systems and wideband pulse-ranging AVM systems. Amtech's assertion to the contrary is revisionist history. Amtech Opposition at 3, 17-18, 22-24.

The interim rules provided for the licensing of wideband pulse-ranging systems within the 904-912 MHz and 918-926 MHz bands. Thus, Section 90.239(c) of the Commission's Rules states: "[l]icensees for pulse-ranging AVM systems, requiring 8 MHz bandwidth may be authorized in the 904-912 MHz or 918-926 MHz band . . . ." 47 C.F.R. § 90.239(c). The order adopting the interim rules explained that the Commission provided

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[10] *Compare* Report and Order, 30 Rad.Reg. 2d at 1670 ¶ 10 (allocating more spectrum to "wideband" systems) *with* Report and Order, 30 Rad.Reg. 2d at 1670-71 ¶ 10 (allocating less spectrum to "narrowband" systems).

"for wideband AVM operation in the frequency bands of 904-912 MHz and 918-926 MHz." Report and Order, 30 Rad.Reg. 2d at 1670 ¶ 10 (emphasis added).

The Commission's licensing scheme was necessary in 1974 and it is necessary today. Narrowband systems on the wideband spectrum cause debilitating interference to wideband systems. The ability of a system to decode a signal is a direct function of the ratio of signal energy to noise energy. Given the current environment in the 900 MHz band, an accurate location determination by a wideband pulse-ranging AVM system requires the signal to be properly decoded by a minimum of four (and preferably five) sites. An interfering source (*e.g.,* a narrowband system) blocking the reception of the signal at one site will result in system inaccuracy. Filtering known sources of interference requires vast expenditures of energy and resources, but is possible. If new sources of interference are permitted to occur, it becomes virtually impossible to maintain the system's performance. This has very grave public interest consequences for a system providing law enforcement assistance (as well as other important) services.

The Commission did two things to avoid interference problems. First, it provided for co-channel separation between wideband AVM systems. As the Commission explained, the 904-912 MHz and 918-926 MHz frequency bands were designed to accommodate "two separate wideband AVM systems . . . in each market." Report and Order, 30 Rad.Reg. 2d at 1671 ¶ 10. Second, it established special licensing rules for narrowband systems. The Commission permitted narrowband systems to use the 903-904 MHz, 926-927 MHz, 20-50 MHz, 150-170 MHz, and 450-512 MHz bands. 47 C.F.R. § 90.239(c)(2), (3). As the Commission explained:

> [T]he proposed 900 MHz reallocation should encompass also those AVM techniques, other than the wideband method . . . Thus, the frequencies 903-904 and 926-927 MHz, which had been included in the proposed reallocation for wideband AVM, are being made available for such other systems.

Report and Order 30 Rad.Reg. 2d at 1671 ¶ 12. The Commission understood the difference between wideband and narrowband systems in 1974 and it designed the interim rules accordingly. The petition simply proposes to enforce the Commission's original licensing plan, thereby allowing implementation of wideband pulse-ranging systems.

The Commission's 1974 rules recognized the fundamental differences between wideband wide-area systems such as MobileVision's and narrowband local-area systems such as Amtech's. Due to those differences, the Commission established different licensing and operational schemes for these systems. The Commission should adopt permanent rules which continue this distinction.

2. The Commission Staff Has Disregarded Its 1974 Licensing Scheme.

Despite the clear delineation between wideband and narrowband systems in the interim rules, the Commission staff has subsequently disregarded the 1974 licensing scheme. As a result, narrowband systems such as Amtech's have been licensed in the 904-912 MHz and 918-926 MHz bands.[11] The problem with this has become especially apparent with the implementation of wideband pulse-ranging systems. As wideband technology has been developed and implemented, interference problems between wideband

[11] Of course, the staff action did not change the rule, nor could it. A rule change could only be effectuated by a rulemaking proceeding.

wide-area and narrowband local-area systems have grown. This experience merely validates the Commission's understanding about the relative technological needs of narrowband and wideband systems. Wideband pulse ranging technology is capable of providing innovative services that the consuming public needs and demands. As demonstrated in the Technical Appendix to MobileVision's initial comments in this proceeding, further licensing of narrowband systems within the 904-912 MHz and the 918-926 MHz bands will preclude the introduction of wideband pulse-ranging systems, and deny consumers the benefits of wideband AVM. *See*, MobileVision Initial Comments, Technical Appendix.

Wideband pulse-ranging systems require spectrum which is substantially free from interference. A wideband system must maintain continuous command and control of vehicles on its system. Interference from other AVM systems (wideband or narrowband) can disrupt this communications link and thus make the entire system function improperly. By returning to the 1974 licensing scheme, the Commission will ensure the introduction of new and important services to the public.

THE PROPOSED RULES

The AVM market is developing rapidly as licensees are implementing both wideband and narrowband systems throughout the United States. AVM system operators have developed and are implementing technology which will provide important services to both industry and individuals. Teletrac's Petition recognized that it is essential that these services remain available to the consuming public. These services must also develop to meet market demand. Thus, the proposed rules would provide licensees with the flexibility to bring new technologies and services to the public.

Certain of the commentors see this proceeding as something different. Amtech and its customers saturated their comments with incorrect statements regarding the interim and proposed rules and the differences between wideband wide-area and narrowband local-area systems. Moreover, they wrongly allege that Teletrac's proposed rules would freeze narrowband technology where it is or, worse, force narrowband systems off the spectrum. Amtech's fears are entirely misplaced. If the Commission adopts Teletrac's rules, Amtech's existing licenses would be grandfathered. Moreover, Amtech could continue to design and implement its tag systems in the 903-904 MHz and 926-927 MHz bands.

In order to promote the efficient use of spectrum, however, the proposed rules would preclude Amtech from using additional frequencies or locations within the 904-912 MHz and 918-926 MHz bands.[12] Similarly, to the extent they changed the nature or character of its emissions, the proposed rules would require Amtech to coordinate with other licensees who are also using the spectrum. These accommodations may be deemed inconvenient by Amtech in light of its present unhindered use of the spectrum, but they are not unreasonable.

Pinpoint and Southwestern Bell express concern that permanent rules would inhibit the development of wideband pulse-ranging systems. That concern is not warranted -- unless Amtech's position is adopted. The proposed rules would encourage licensees to continue developing and implementing innovative technologies. Similarly, the proposed rules

[12] Those frequencies include in various markets: 903.025, 904.000, 904.005, 904.010, 905.000, 906.000, 907.000, 907.500, 908.000, 909.000, 910.000, 911.000, 911.990, 912.000, 918.000, 918.005, 918.010, 920.000, 922.000, 922.500, 924.000, 925.000, 925.990 and 926.000.

would establish a dynamic AVM market place thus encouraging Pinpoint and Southwestern Bell to develop technology of their own, to acquire licenses and to implement their systems.

The proposed rules will promote the efficient implementation of AVM systems -- both wideband and narrowband. By adopting the proposed rules, the Commission would ensure the greatest flexibility for all users of the 902-928 MHz band. Consumers would have the flexibility to choose from a wide range of services offered by narrowband and wideband systems. The Commission would encourage the continued development and implementation of new technology. Therefore, the Commission should initiate a rulemaking to adopt permanent rules for the licensing and operation of AVM systems.

A. The Proposed Rules Will Promote Competition By Encouraging Implementation Of Both Narrowband And Wideband Systems.

Teletrac's proposed rules will promote competition in several important ways. First, the rules would grandfather existing licensees, thus allowing companies such as Amtech to provide service and develop new technology to meet market demand. Second, the rules would enable new narrowband licensees to use the 903-904 MHz and 926-927 MHz bands -- spectrum specifically provided to them in the interim rules. Third, the rules would limit the amount of interference which wideband pulse-ranging systems must overcome, thus introducing new and important services to the public. In sum, the proposed rules would provide the public with the benefit of competing AVM technologies and services without unduly limiting the ability of any licensee to provide service.

1. The Proposed Rules Appropriately Grandfather All Existing Licensees.

Narrowband systems operating on the 904-912 MHz and 918-926 MHz bands cause substantial interference problems for wideband pulse-ranging systems. *See* MobileVision Initial Comments, Technical Appendix. Thus, the proposed rules return to the original frequency designation plan contemplated by the interim rules. Under the proposed rules only wideband systems would be licensed on each of the 904-912 MHz and 918-926 MHz bands. However, the proposed rules would not uproot narrowband systems.

The petition proposes that existing narrowband licensees be grandfathered. Both the Petition and MobileVision's comments thereon acknowledge that displacing narrowband systems currently operating in the 904-912 MHz and 918-926 MHz bands would be inappropriate at this time. Thus, the proposed rules will not displace or preclude any current narrowband operations. Rather, they will allow Amtech and its customers to continue to enjoy the benefits of narrowband AVM technologies. Therefore, railroads, trucking companies, toll authorities, and other companies who currently operate narrowband local-area systems are protected under the proposed rules.[13]

But the proposed rules will do much more than protect the status quo. They would enable wideband pulse-ranging systems to come to market without harming Amtech and other narrowband providers. This will enhance competition, benefit consumers and introduce a wide range of services to the marketplace.

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[13] The American Trucking Association, the American Association of Railroads and other Amtech customers submitted comments in this proceeding. All of these were apparently based on misinformation provided by Amtech regarding the proposed rules. Each of these parties made the same wrong assertion that Amtech made -- namely, that the proposed rules would evict existing Amtech systems from the spectrum.

Amtech nonetheless complains that the proposed rules would threaten "the further development and deployment of Amtech technology. . . ." Amtech Opposition at 1. Ironically, it is Amtech that proposes a set of rules which will *de facto* prevent the implementation of wideband pulse-ranging systems by saturating the entire AVM spectrum to the point that it will be impossible to operate a wideband pulse-ranging system. Amtech's proposals will thus impede competition and deprive the public of important services associated exclusively with wideband AVM technology.

2. The Proposed Rules Would Allocate Spectrum For Narrowband Licensees.

Grandfathering will provide substantial protection for existing narrowband licensees. But operators of narrowband systems will have additional protection under the proposed rules. The proposed rules provide for licensing of new narrowband systems in the spectrum originally identified by the Commission for narrowband licensees.[14] This should accommodate many of Amtech's concerns since its narrowband technology is flexible, and can operate with impunity in a wide range of spectrum. Amtech Opposition at 10.

This licensing scheme is nothing new. The Commission has recognized the fundamentally different spectrum needs of wideband and narrowband systems. Report and Order, 30 Rad.Reg. 2d at 1671 ¶ 11. While Amtech has apparently received some sort of waiver of the interim rules, there is no basis for the Commission to presume that allowing narrowband systems on wideband frequencies would be a necessary or appropriate course

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[14] This includes 903-904 MHz, 926-927 MHz, 20-50 MHz, 150-170 MHz, and 450-512 MHz.

of action in every case. Moreover, neither Amtech nor any other party in this proceeding has come forward with technical proof that narrowband systems -- even Amtech's system -- cannot operate on the spectrum specifically identified for these services.

3. The Proposed Rules Would Limit Interference And Thus Foster The Development Of Both Wideband And Narrowband Systems.

The proposed rules will also promote competition by limiting interference on the wideband spectrum. Amtech nonetheless argues that the proposed rules will inhibit technological innovation and implementation of new AVM systems. However, the prospect of debilitating interference is what now impedes development of wideband pulse-ranging technology and widespread build out of current wideband AVM systems. Interference caused by unbridled proliferation of narrowband systems within the wideband frequencies or the operation of multiple wideband systems on the same frequencies will pollute the spectrum to the point that wideband pulse-ranging operation is impossible. Faced with this potential technical devastation, MobileVision and other wideband pulse-ranging providers are taking significant financial risks to implement their AVM technology. Therefore, far from being anti-development, rules limiting interference encourage development and wholesale implementation of wideband pulse-ranging systems.

As such, the proposed rules are fully consistent with Section 7 of the Communications Act and serve to implement the policies expressed therein. In that section, Congress directed the Commission "to encourage the provision of new technologies and services to the public." 47 U.S.C. § 157(a). Regulatory protection from interference is